## REMARKS/ARGUMENTS

Applicant thanks the Examiner for the allowance of claims 19-21. The Examiner indicated that 4,5, and 11-18 were considered allowable if rewritten in independent form, including all the limitations of the base claim and any intervening claims. Applicant has accordingly rewritten claims 4 and 12 as independent claims by incorporating the limitations of claim 1 (and in the case of claim 4, the limitations of claim 2 as well), and by making claim 11 dependent on claim 4. Claims 4, 5, and 11-17 are therefore believed to be in condition for allowance along with claims 19-21. Applicant currently leaves claim 18 in its original form, since the claim from which it depends has been substantially amended, and to minimize the fees for extra independent claims.

The Examiner has rejected claims 1,2,3,6, and 10 under 35 U.S.C. 102(e) as being anticipated by Chu et al, and has rejected claims 1,2,3,6,7-10 under 35 U.S.C. 102(e) as being anticipated by Feher. Applicant respectfully traverses these rejections as follows.

With respect to claim 1 and Chu et al., Chu et al. does not disclose or suggest the direct connection of cold-side connectors in common to a rigid, unitary, structurally supportive cold sink as claimed. Instead, Chu et al. in Figs. 1-5 shows both the hot and cold sides of the thermoelectric elements connected by multiple spaced, separate "electrodes" 2 and 3 that include multiple heat exchange fins 2F and 3F (col. 3, lines 30-67). Chu et al. describes this multiple spaced electrode configuration as eliminating the thermal stress of a single heat sink on each side of the array as in the prior art of Fig. 8 (col. 4, lines 23-36), and therefore teaches away from the claimed direct connection to a structurally supportive unitary cold sink. In Figs. 6 and 7, Chu et al. shows the "other" side of the TE array electrodes connected to a fluid-conducting water jacket 25, but requires the addition of a separate

electrical insulator layer 26, 36 (apparently a ceramic plate such as G in Fig. 8) between the electrodes and water jacket, which insulator layer applicant's invention as set forth in claim 1 eliminates. To the extent the Examiner seems to be interpreting a single pair of Chu et al's thermoelectric elements and a single cold-side electrode as the claimed thermoelectric heat pump module ("the base section and each of the fins are formed in one united body"), this ignores the distinction in claim 1 between the cold-side connectors and the unitary cold-sink to which all of the cold-side connectors are directly connected, and the general understanding in the art of a "module", which comprises many such pairs and electrodes.

Feher discloses a multiple electrode/fin arrangement on both sides of the module, similar to Chu et al's Figs. 1-5, and although at col. 4, lines 52-67 describes the Fig. 7 array as having flat bottom electrodes "able to be assembled onto a solid surface which may be either part of an object to be cooled, for example, or a waste heat sink", the flat electrodes intended to be so attached are actually a composite of dielectric ceramic 58 and a conductor 56 deposited on the surface of the ceramic, with the same disadvantages discussed in applicant's Background section with respect to such ceramic insulating layers. To clarify the distinction between the structure of claim 1 and Feher, applicant has amended claim 1 to recite that the cold-side connectors are *continuously* electrically and thermally conductive, i.e. provide an uninterrupted path of high electrical and thermal conductivity between the thermoelectric elements and the cold sink. Applicant has further amended claim 1 to recite that the cold sink is a metal with an anodized layer to which the cold-side connectors are directly connected in common. The advantages of this construction are discussed, for example, in paragraph [0045] of the application. Feher's dielectric-based connectors would be complicated, expensive, relatively fragile, lacking in structural support, and thermally inefficient.

The rejections of claims 1-3 are accordingly believed to be traversed. Applicant has additionally amended claims 2 and 3 to better define what is meant by "sealing and supporting", and what is meant by the potting layer "enclosing" base portions of the connector sinks, which potting support and enclosing are neither shown nor described by Chu et al. or Feher, both of which show insulation material extending to, but not apparently encapsulating, base portions of their electrode/fins (in Feher, closed-cell foam in "the space *between* the facing crossbars 22 and *between* the semiconductor pellets" – col. 4, lines 15-17; in Chu, insulator resin/sealant in the "*interspaces among* the thermoelectric semiconductor elements" – col. 3, lines 48-50).

With respect to claims 6 through 10, applicant has amended them (along with claim 2 from which they depend) to better distinguish between the sealing and structurally supportive potting layer and the thermal insulation above it. The advantages of this construction are discussed, for example, at paragraphs 0053, 0054, and 0057 of the application. This construction is neither taught or suggested by Feher and Chu, which merely place a poorly-sealing insulator (Feher) or a poorly-insulating sealant (Chu) *between* and *among* the spaces between the thermoelectric elements.

Applicant has added a new dependent claim 22, dependent on claim 1 and claiming the integral spacer portion (see 46a in Fig. 3, described at paragraphs 0037 and 0045) of the cold sink's unitary metal body. Neither Feher nor Chu teaches or suggests this structure, which decreases parasitic heat flow without detracting from the support or thermal efficiency of the cold sink.

The application is accordingly believed to be in condition for allowance, and such is respectfully requested. The Examiner is invited to call Applicant's undersigned attorney at 231-932-9752 with any questions.

Respectfully submitted,

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